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Keywords

Reflective group discussion, Professional development, Oral health, Reflective learning, Reflective practices

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The primary aim of this study was to determine perceptions of three cohorts of third year undergraduate students ($n=65$) on in-class reflective group discussion as a critical reflective approach for evolving professionals. Reflective group discussions were embedded into a final year course within the University of Queensland Bachelor of Oral Health program iteratively over three years. Reflective practices were integrated with clinical practice, and were linked with assessment requirements. Students' perceptions of reflective group discussions were obtained via questionnaires and reflective essays. The key benefits of reflective group discussions perceived by students included peer learning, peer and/or tutor support and multi-perspective critical thinking. Students welcomed the inclusion of reflective group discussions into their curriculum, not as a substitute of, but rather, complementary to reflective writing. Students invoked that reflective writing and reflective group discussions were beneficial in different ways. The interactive, supportive and multi-perspective nature of reflective group discussions was particularly appealing to students.

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Introduction

Being a reflective practitioner is a highly desirable attribute for professionals because it signifies quality assurance through a sustained cyclical process of self-examination, self-evaluation, self-directed learning, enlightenment, self-optimization and transformation. To be relevant and applicable to the dynamic community and global economy we live in, graduates need to possess more than just knowledge and skills, they need to know how to learn, how to enable learning, to be self-aware and self-critique, to construct their own meanings and perspectives, as well as to consider contexts and experiences in light of learning (Masella, 2007; Dall'Alba, 2009; Tsang, 2010). Teaching to impart knowledge and skills is no longer adequate, rather it is the "teaching to enable learning" that must be emphasized.

Students learn best by thinking, evaluating, integrating and internalising insights gained from their various experiences (Andresen et al., 2000). Critical reflection, reflective learning, reflective practice are believed to be salient in scholarly inquiry and underpins the construction of new knowledge and perspectives from experiences, leading to continual and enduring transformations (Schon, 1987 & 1991; Mezirow 1998; Mann et al., 2009). Yet critical reflection is an ill-defined concept, with diverse meanings to different people and varying contexts (Mezirow, 1998; Fisher, 2010). Despite this, the understanding of what critical reflection refers to is often assumed as tacit knowledge.

In this study, critical reflection refers to a focused and structured cognitive-metacognitive process of deep examination, evaluation, analysis and query of a learning experience or

critical incident which results in transformation of the mind e.g. new appreciations, insight contextualization, changed perspectives and beliefs, and translational actions e.g. new way of doing things, search for further understanding, thereby impacting and challenging themselves and others (Boud et al., 1985; Schon 1991; Mezirow, 1998; Tsang & Walsh, 2010). It is also through critical reflection "in context" (a context of personal attitudes, values, beliefs as well as a context of the profession) that the professional identity of an individual and the expectations of the profession evolve and transform (Fleming, 2007; Mann et al., 2009).

Reflection as described above, is linked with critical social theory, which is itself connected to adult learning (Brookfield 1987 & 1988), experiential learning (Dewey, 1933; Kolb, 1984) and transformational learning (Freire, 1994; Mezirow, 1998). Critical social theory provides a framework by which changes and emancipation in the pedagogical process can occur, through reflection, critique, analysis and transcendence, giving considerations to cultures and contexts, from one of knowledge transmission to knowledge transformation (Giroux, 1993; Wilson, 1995; Leonardo, 2004). Through critical interrogation and query, combined with contextual awareness and imaginative speculations, critical social theory "function to cultivate students' ability to question, deconstruct and then reconstruct knowledge in the interest of emancipation" and make explicit, the implicit (Brookfield, 1988; Leonardo, 2004). It does not refute, reject or dismiss but it challenges oppression, invites debates, encourages openness to different ideas and assumes the possibility of change and the opportunities that change brings (Freire, 1994; Leonardo, 2004). "Engagement is at the base of criticism" (Eagleton, 1976) and from there, it "asks questions about common answers rather than to answer questions" (Shor, 1993). In particular, critical social theory rejects theory and practice as segregated entities, rather, it promotes the development and application of theory in creating knowledge that has the potential to empower change, as part of the emancipatory and transformative functions of knowledge (Leonardo, 2004; Carrington & Selva, 2010). Critical social theory in education is "as much about gaining the ability to read the world more critically (ideology critique) as it is imagining a better world that is less oppressive (utopian critique)" (Leonardo, 2004). Moreover, according to the tenets of critical social theory, critical reflection of the individual's experiences should result in perspective transformation and empowerment to act within and upon themselves and their social domains (Leonardo, 2004). Students in this setting, actively engage in dialogue, not as subjects to be taught but as critical collaborators (Freire, 1994), who are contextually aware (Brookfield, 1988) and analytically reflective of their experiences and emotions, as well as of established views and assumptions (Mezirow, 1998).

Reflective writing, in particular reflective journaling, is among the most popular reflective tool used in undergraduate programs. Reflective writing has been frequently supported in the literature as being important for the "facilitation of students' integration of course content, construction of new knowledge and application of new knowledge" (Freidus, 1998; Mann et al., 2009). Students are generally aware of the need to engage in reflection. Yet, the evidence for the efficacy, relevance and long-term impact of reflective writing still appears inadequate and controversial (Graham & Phelps, 2003; Mann et al., 2009).

Reflective journaling is often required of students, yet studies suggest that reflective writing from the average student are generally poor quality and indicate little evidence of critical reflection and transformative engagement (Mann et al., 2009; Dymant & O'Connell, 2010). Moreover, students commonly find the reflective approach difficult and time consuming. Few continue the practice of reflective journaling into their professional careers (Wetherell & Mullins, 1996; Bush & Bissell, 2008; Sandars, 2009; Killeavy & Moloney, 2010). Keeping in mind that lifelong critical reflection is the learning outcome desired and not reflective writing per se, it is important that different opportunities for developing skills and building capacity to enable lifelong critical reflection be explored.

Group reflective discussion is not a novel pedagogy per se. Elements of group reflective discussion are embedded into various teaching and learning approaches including peer coaching, cooperative learning, community of practice, peer learning and collaborative learning, etc. (Wenger et al., 2002; Godinho, 2008; Lu, 2010). Nevertheless, as Godinho (2008) puts it,

"Despite the rhetoric that learning is a social phenomenon, interactive talk continues to be undervalued as a pedagogy which contributes to better learning outcomes for students".

Studies evaluating the effectiveness of reflective group discussions and students' perceptions toward reflective group discussions in comparison to reflective writing approaches are comparatively few. Henderson and co-authors (2002) in their writing suggested that semi-structured reflective group discussions enhanced students' enjoyment and perceived learning. Crowther & Jeffrey (2007) utilized weekly group reflective sessions as part of a professional development program for mental health nurses and found that these sessions were well received but long term participation was uncertain, due to not being given time to attend these sessions during work hours, combined with reluctance of nurses to use their own time to consolidate learning. Bush & Bissell (2008) in their study evaluating the role of portfolios in reflective learning mentioned mentor group discussions as being valuable as an incidental finding. Alterio (2004) articulated that reflecting with others result in multiple-perspective learning if there is mindful engagement with the process. Jindal-Snape & Holmes (2009) identified conversation as a beneficial method of reflective practice, especially when reflective conversations occurred with a mentor or reflective supervisor and as exchanges between peers or communities of practices.



The primary aim of this study was to determine perceptions of three cohorts of third year oral health students on in-class reflective group discussions as a critical reflective approach for evolving professionals. The objectives of this study are to determine whether or not students support in-class group discussion and determine if they have a preference on reflective essay writing over reflective in-class group discussion. In line with these objectives, the following questions were investigated:

- Does in-class group discussion actually promote reflection?
- Does significant student support for in-class reflective group discussion exist?
- Does the level of student support for in-class reflective group discussion significantly differ from one cohort to another?
- Do students significantly prefer individual reflective journaling over in-class reflective group discussion and vice versa, for each of the three cohorts?
- What are the students' perceived positive and negative aspects of reflective in-class group discussion?

Context

Whilst literature on reflective learning and reflective practices abounds in the fields of social sciences and education, studies in the health and allied health contexts, with the exception of nursing, are comparatively few. Yet, almost every health and allied health profession articulates the importance of reflective practice in some way.

In Australia and New Zealand, Oral Health Therapy is an emerging oral health profession. Graduates are trained in the areas of dental hygiene practice, dental therapy practice and oral health promotion and education. Oral Health Therapists are currently registered as dental hygienists and dental therapists under the Dental Board of Australia and are

employed in public oral health services as well as in private dental practices, including specialist practices. Only limited research evidence exists at present in relation to the significance of reflective learning for the clinical practice and professional development of oral health therapists (Tsang & Walsh, 2010). Nevertheless, given that experiential learning, problem-based learning and self-directed learning are emphasized in most oral health therapy training programs in Australia and New Zealand and that these learning approaches are enhanced by the ability to critically reflect, the relevance of critical reflection to oral health therapists in-training need not be doubted.

Reflective learning is often inserted into the undergraduate health and allied health curricula without substantial consideration, sufficient guidance and substantive evaluation. Student perceptions, variations in student reflective orientation and learning approaches, the need to modify traditionally "technical rationality"-oriented and content-laden curricula to accommodate and align with reflective learning, the most appropriate reflective practice/s to incorporate, the time needed for developing and improving critical reflective skills as well as the time and space needed for in-depth critical reflection and the subsequent application and transformation, the challenges of assessing reflections, the implications of ethics and impact in terms of learner and patient outcomes, are frequently overlooked or "under-considered" (Tsang, 2009). The lack of evidence to support reflective learning is seemingly overridden by the assumption that reflective learning must be included into any contemporary professional training curricula for the improvement of learner competence (Schon, 1987 & 1991; Kember et al., 2000 Mann et al., 2009).

It is within such a context that reflective learning was first officially introduced into the UQ Bachelor of Oral Health in 2006. It was driven by the urgency to optimize and transform students' clinical learning from "clinics were mundane" and "clinics were attended then forgotten" to "enlightenment, empowerment and emancipation" of students as evolving professionals (Kember et al., 2000; Tsang, 2009; Tsang & Walsh, 2010).

Methods.

Participants

This study was approved by the University of Queensland Medical Research Ethics Committee. Dental Hygiene Practice III is a compulsory full year course of two 13-week semesters within the three year Bachelor of Oral Health program at The University of Queensland (UQ) School of Dentistry. Written consent to analyze students' reflective writing and feedback questionnaire responses for research and publication was obtained from all students prior to commencement of the academic year. All Oral Health students in their final year in 2006 to 2008 ($n = 65$; 17 in 2006, 25 in 2007 and 23 in 2008) enrolled in Dental Hygiene Practice III consented to participate in this study. Majority of the students were female, with the exception of 4 male students in 2007 and 1 male student in 2008).

The Intervention

All Oral Health students in their final year in 2006, 2007 and 2008 participated in in-class clinical reflective group discussions within Dental Hygiene Practice III. Clinical reflective group discussions are one of a number of reflective learning components being embedded into the curriculum.

Regular time was allocated within the Dental Hygiene Practice III clinical sessions for in-class reflective group discussions. These discussions were 1-1.5hrs in length, semi-structured and facilitated by a Visiting Dentist / Oral Health Therapist / Dental Hygienist. In 2006, students participated in 4 reflective group discussion sessions during the academic year. In 2007 & 2008, students participated in 6 sessions during the academic year.

Students were instructed to participate in these discussions with open minds and were encouraged to contribute voluntarily and non-judgementally. Students were assured that details of discussions would remain within their group and that they would not be required to share any points of discussion with other groups. The reflective group discussions aimed to:

- Focus on topics relevant to oral health, that move beyond the recount and react to evaluating, analysing, contesting of existing ideas, generalising, questioning, and applying and internalizing of new ideas
- Involve sustained dialogues where exchanges of ideas occur, and are synthesized, elaborated upon and considered,
- Promote self-awareness as well as a genuine concern for others, leading to peer support, mentoring and guidance.
- Encourage peer learning, collaborative learning and collective learning.

Typically each discussion involves two parts. First, each student was invited to share a critical incident within their small discussion group of five to six and the group chose one of these to then reflect upon in greater details. In reflecting upon the critical incidents, students were guided to explore not only the problems and outcomes, but also the underlying beliefs, values, assumptions, relevance and alternatives. This is followed by a reflective discussion on a critical incident chosen by the facilitating staff. Periodically, students also shared their reflective writing processes and how they were using their reflections in the clinic. Each group also provided a one page summary of the main points reflected upon and discussed, to the course coordinator for feedback. Each student was also asked to reflect upon the usefulness of the reflective group discussions within their reflective writing. The reflective group discussions were assessed as a part of the reflective learning component (including reflective writing and reflective group discussions). Students were assessed as either pass or fail based on attendance and participation.

All three cohorts completed one experience questionnaire containing questions related to clinical reflective group discussions per semester. Each questionnaire consisted of 12-15 statements of which 5 are related to reflective discussion. Responses made according to a 5 point Likert scale (strongly agree, agree, neutral, disagree, strongly agree), and 4 open-ended questions: 1) Any positives related to reflective group discussions? If so, what were they? 2) Any negatives related to reflective group discussions? If so what were they? 3) Reflective writing e.g. journals, essays vs. reflective group discussions, what do you prefer and why? 4) Any other comments or suggestions? The format of the questionnaires was identical to validated institutional teaching and course evaluation tools used at UQ. The statements and open-ended questions were similar to and modified from those in the question bank for the evaluation tools. Questionnaires were completed anonymously to optimize participation.

In addition, the students' perceptions of the in-class reflective group discussions were also articulated in their reflective essays, which were part of course requirement.

Changes Over the Three Iterations

Minor changes to improve the reflective group discussion sessions were made each semester, based on student and staff feedback. Some changes were also made out of necessity which may or may not contribute positively to the intervention (Figure 1).

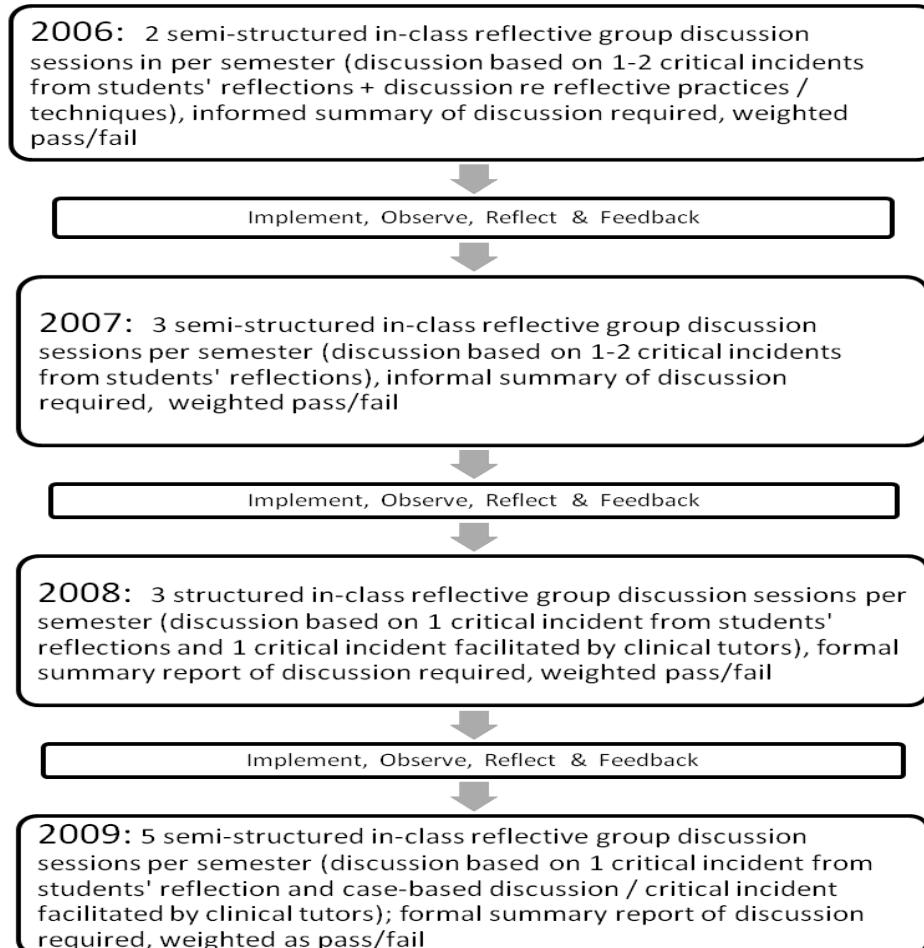


Figure 1. Changes made to Clinical Reflective Group Discussions in Dental Hygiene Practice III: 2006-2008 Iterations

Data Analysis

Students' perceptions of clinical reflective learning were obtained via analyses of feedback questionnaires, combined with thematic analyses of the students' discussion summary notes and reflective essays. In this study, the students' reflective journals were not analyzed.

Students' responses to the five Likert scale questions in the feedback questionnaire were analysed using GraphPad Instat (version 3). The binomial test was used to determine whether or not a proportion in one of two categories is significantly different from a specified amount. The Chi-square test was used to determine whether or not multiple proportions are significantly different from each other. The alpha value was set at 0.05. An independent statistician assisted in verifying the data analyses. Students' responses to the open-ended questions in the questionnaires were descriptively summarized.

To determine the main themes reflected upon by students during reflective group discussion sessions and to determine the key benefits of reflective group discussions as perceived by students, thematic analysis of students' discussion summary notes and reflective essays were performed using Leximancer software (version 3.7). Relative frequency is measured for each concept and represents the conditional probability of concept i.e. the likelihood that the concept is mentioned as a positive (or negative) sentiment. Relevance is measured for

each ranked concept and represents the number of occurrences of the concept as a proportion of reflective.

Leximancer was used in the same way as per an earlier study (Tsang & Walsh, 2010). In brief, Leximancer performs "automatic content and thematic analysis" (Smith & Humphreys, 2006). In brief, concepts represent groups of keywords that occur in close proximity that describe an idea. Keywords are weighted according to the frequency of occurrence within each text unit containing the concept compared to the frequency elsewhere; a concept is marked only if the sum of the weights of the keywords found is above a preset threshold. The thesaurus function enables concept editing by merging similar concepts into a single concept, defining context-specific concepts, deleting concepts and/or creating concepts to facilitate different perspectives. Themes represent a summary of concepts determined based on co-occurrence. The frequency of co-occurrence between concepts is determined, the concepts and themes are then classified, and a concept map is generated from an "asymmetric concept co-occurrence matrix" to aid in analysis and interpretation. Concepts are contextually clustered on the concept map and located in relation to theme circles that cluster related concepts. Concept maps are constructed multiple times to ensure consistent trends and validity. In addition, a thematic summary representing ranked concepts, connectivity and relevance numerically is generated to complement each concept map. The reliability of the coding is based on mathematical algorithms used in the software (Smith & Humphreys, 2006).

Students' discussion summaries were further examined using Kember et al.'s four levels of reflection (Kember et al., 2008), to determine if in-class group discussions were actually reflective. A random selection of four summaries from each of the three cohorts was examined for evidence of reflection. Kember et al.(2008)'s levels of reflection were originally developed for the assessment of reflective journals. Its use in this study was based on the rationale that reflection as a process does not change regardless of the tool used for reflection. Using Kember et al.'s (2008) recommendations each summary was examined to determine evidence of reflection:

Habitual action / non-reflection: description of experiences, practices or suggestions without contextual considerations, evaluation or query or providing a "textbook" answer without demonstration of personal understanding.

Understanding: making sense of experiences, practices or suggestions in relation to theoretical knowledge but without deeper consideration in relation to personal experiences, applications or internalization of concepts.

Reflection: articulate experiences, practices or suggestions with theoretical knowledge and making interpretations and judgments in relation to personal experiences, resulting in personal insights, new appreciations or learning goals.

Critical reflection: examination of experiences, practices or suggestions resulting in query of existing presumptions, leading to a search for alternatives, changed perspectives over a fundamental belief or concept or transformative action.

Results

Does In-class Reflective Group Discussion Actually Promote Reflection?

Examination of students' summaries using Kember et al.'s four levels of reflection revealed that the twelve randomly selected in-class group discussion summaries demonstrated elements of reflection and critical reflection. Non-reflection and understanding as described

by Kember et al.'s four levels of reflection (2008) were also evident in each of the summary. An extract from a discussion summary illustrates this:

"This session we focused on J's critical incident regarding patient's primary concern with stains when in fact she had much bigger clinical problems (like perio and dental caries). One of us asked why removing stains is important even though we all know stains never killed anyone.

We went on to discuss how unless patients stop the causes of their extrinsic stains, return of the stains are definite and questioned what we can do to help educate patients about stain prevention (and in fact, whether stains can actually be "prevented" at all??)...

We wondered if the patient's satisfaction should be a priority, like if it is actually ethical to remove stains as a priority (because patient sees it as a priority) when they have greater more complex oral health concerns...

Our supervisor prompted us in looking from the patient's perspective and we discussed source of motivation and habitual changes that may result from the patient's post-stain removal satisfaction, like smoking cessation for the sake of their "vanity" is good as it also result in better perio outcomes.....

We discussed what is worthwhile vs. what may just be a "practice builder" when we go out into private practice..." BOralH III 2006

Typically, students' discussion summaries began with a list of critical incidents presented by each member, followed by more detailed notes on the critical incident selected by the group for discussion (as in extract above) and ended with thoughts and feedback regarding their reflective practices. Reflection and/or critical reflection were most evident during discussion of the group-selected critical incident when students progress from an understanding of the critical incident, to internally engaging with the critical incident through critique and analysis and externally participating through problem solving and "problem posing". "Problem posing" was often "kick-started" by a facilitating supervisor.

Thematic analyses of students' discussion summaries identified the following topics as being most frequently discussed: clinical practice (including in Leximancer thesaurus: clinical practice, clinical procedures, patient care, treatment, management, prevention, therapy, dental hygiene practice, risk assessment, periodontal maintenance, restorations, polishing and recontouring, referral, clinical problems, clinical questions, clinical protocols, procedural issues, clinical options, clinical alternatives, dental problems, dental concerns, dental diseases, oral health problems, oral diseases) (relative frequency of 85%), time management (including time management, time, just in time, timely, running late, on time, slow, slow down, quicker, quickened, faster, hurry up, speed up, delayed, , behind schedule, behind, get going) (72%) and professional development (including professional behaviour, professional expectations, peer expectations, patient expectations, supervisor expectations, professional demeanor, professional conduct, code of conduct, professional standards, standard of care, professional presentation, professional appearance, professional communication, unprofessional, professional attitude, professional value, professional identity, professional confidence, lack of confidence, dress code, ethical, unethical, professional reasoning, professional justification) (48%).

Does Significant Student Support For In-class Reflective Group Discussion Exist?

To address this question, a binomial test was used to determine if significant student support for in-class reflective group discussion exists, as indicated by the agree/strongly agree proportion for each of the five statements in the student feedback questionnaire compared against a test proportion of 0.5 (Table 1 and 2). Statements 1-4 (Table 1) indicate that significant student support for in-class reflective group discussion exists and is related to reflective group discussion being enjoyable, positive, contributing to learning, enhancing confidence, encouraging improvements in critical thinking and professional reasoning. However, statement 5, "I would like to have more class reflective discussion sessions", agree/strongly agree responses were found to be only significantly greater than the other responses in cohort 2006. This suggests that students support for the increase of reflective group discussion sessions is more divided among the students (Table 2).

Table 1. Student perceptions of class reflective discussion.

Statements	2006 Cohort	2007 Cohort	2008 Cohort
	(n=17)	(n=20)	(n=22)
Agree / Strongly Agree [n (%)]			
1. I enjoy the class discussion components of reflective learning.	14 (82%)	20 (100%)	21(95%)
2. Reflective discussion was positive and should be continued.	14 (82%)	20 (100%)	21(95%)
3. Group reflective discussion sessions have helped me in my own learning and confidence.	14 (82%)	19 (95%)	17(77%)
4. Group reflective discussions have encouraged me to improve in critical thinking, professional reasoning.	14 (82%)	20 (100%)	17 (77%)
5. I would like to have more class reflective discussion sessions.	14 (82%)	13 (65%)	12 (55%)

Table 2. Results of binomial test for statements in student feedback questionnaire

Statement	Category	N	Observed	Test	Exact Significance
Results of binomial test for statements 1 to 5 in 2006 cohort					
1 to 5	Group 1 Agree/Strongly agree	14	.82	.50	.013
	Group 2 Others	3	.18		
		17	1.00		
Results of binomial test for statements 1 to 5 in 2007 cohort					
1,2, and 4	Group 1 Agree/Strongly agree	20	1.00	.50	.000
		20	1.00		
3	Group 1 Agree/Strongly agree	19	.95	.50	.000

	Group 2	Others	1	.05		
			20	1.00		
5	Group 1	Agree/Strongly agree	13	.65	.50	.263
	Group 2	Others	7	.35		
			20	1.00		
Results of binomial test for statements 1 to 5 in 2008 cohort						
1 and 2	Group 1	Agree/Strongly agree	21	.95	.50	.000
	Group 2	Others	1	.05		
			22	1.00		
3 and 4	Group 1	Agree/Strongly agree	17	.77	.50	.017
	Group 2	Others	5	.23		
			22	1.00		
5	Group 1	Agree/Strongly agree	12	.55	.50	.832
	Group 2	Others	10	.45		
			22	1.00		

Does the Level of Student Support For In-class Reflective Group Discussion Significantly Differ From One Cohort to Another?

To address the second research question, each of the five statements was chi-square tested (Table 3). The results indicate that the level of student support for in-class reflective group discussion did not significantly differ from one cohort to another.

Do Students Significantly Prefer Individual Reflective Journaling Over In-class Reflective Group Discussion and Vice Versa, For Each of the Three Cohorts?

To address this question, descriptive statistics were examined and confidence intervals created which estimates the range of values a proportion may statistically fall into (Table 4). The confidence intervals were based on the combined data of the three cohorts. These were assumed to be representative of the population proportion. The confidence interval for preference for reflective discussion was 23.54 to 45.97% while it was 15.76 to 36.31% for reflective writing.

From these data, the statistical probability that preference for reflective discussion was greater than preference for reflective writing is greater than the opposite happening; in fact, the latter occurring is statistically impossible. Overall, students did not have a strong preference for one or the other.

Examination of student responses to the open-ended questions and their reflective essays further revealed that most students found both reflective discussion and reflective writing beneficial and enjoyable, to varying extents and in different but complementary ways (Table 5).

Table 3. Results of Chi-square tests for a difference in the statements' proportions with regards to cohort

Statement		Value	Df	Asymp. Sig. (2-sided)
1	Pearson Chi-Square	4.805 ^a	2	.090
	Likelihood Ratio	5.273	2	.072
	Linear-by-Linear Association	2.206	1	.137
	N of Valid Cases	59		
2	Pearson Chi-Square	4.805 ^a	2	.090
	Likelihood Ratio	5.273	2	.072
	Linear-by-Linear Association	2.206	1	.137
	N of Valid Cases	59		
3	Pearson Chi-Square	2.652 ^a	2	.265
	Likelihood Ratio	3.030	2	.220
	Linear-by-Linear Association	.302	1	.583
	N of Valid Cases	59		
4	Pearson Chi-Square	4.957 ^a	2	.084
	Likelihood Ratio	7.406	2	.025
	Linear-by-Linear Association	.380	1	.538
	N of Valid Cases	59		
5	Pearson Chi-Square	3.326 ^a	2	.190
	Likelihood Ratio	3.504	2	.173
	Linear-by-Linear Association	3.201	1	.074
	N of Valid Cases	59		

Table 4. Student preferences: reflective writing vs. reflective discussion.

	Frequency				Proportion	Confidence Interval	
	2006	2007	2008	Total		Lower limit	Upper limit
Preference for reflective discussion	4	10	8	22	33.85	23.54	45.97
Preference for reflective writing	4	4	8	16	24.62	15.76	36.31
No preference	9	11	7	27	41.54	30.36	41.54
<i>Total</i>	17	25	23	65	100		

Table 5. Student preferences: reflective writing vs. reflective group discussions – illustrative quotes from reflective essays.

	2006 (n=17)	2007 (n=25)	2008 (n=23)
Preference for reflective discussion	<i>"I feel that reflective class discussion makes a valuable contribution to learning. It is easy to learn through discussion and sharing. It is good because you not only learn from personal experiences you can learn and gain from others."</i>	<i>"I prefer reflective discussions. A journal is an intrapersonal tool so one is limited by their own thought processes. The result is that one may not consider viable alternative perspectives that could be offered by other people, like during group reflective sessions"</i>	<i>"I benefited heaps from reflective discussions because I find learning easier when I explain things to someone and also through listening to others."</i>
Preference for reflective writing	<i>"Reflective discussions were positive but one of the advantages of reflective journal writing is the ability to review or re-read earlier reflections allowing for progressive insight. It was only after I re-read my reflective journal from semester one recently, that I realized reflection is a very useful means of learning."</i>	<i>"The group reflections seemed to become more of nuisance than assistance. Most of the same topics were covered over and over and I began to wonder whether time would be better spent seeing patients or doing own study."</i>	<i>"I prefer reflective writing rather than reflective discussion. Writing reflective journal gave me the chance to express my emotions, about what has transpired in the clinic. Also the information is more likely to be retained in my mind after reflection."</i>
No preference	<i>"I feel that class discussions have neither helped nor hindered my reflective learning. Reflections relied on thinking, not writing or discussion."</i>	<i>"I enjoy the debriefing and sorting of my thoughts using my reflective journal but it was also interesting to learn from the mistakes of others".</i>	<i>"I have enjoyed reflective writing AND group discussions. I feel that I have learnt a great deal on a variety of situations; I have learnt through others' experiences as well as my own – that's the beauty of doing both."</i>

What Are the Students' Perceived Positive and Negative Aspects of Reflective In-class Group Discussion?

Thematic analyses of student reflective essays identified the following as key benefits of reflective group discussion: learning from peers and tutors (including in Leximancer thesaurus: bouncing off ideas, collaborative learning, coaching, collective learning, discussing, feedback, group learning, interactive comments, learn from others, learning together, learning with peers, mutual learning, peer learning) (relative frequency of 88%), critical thinking (including analyzing, appraising, assessing, critical thinking, critiquing, evaluating, exploring, insights, multi-dimensional thinking, multi-perspective thinking, perspectives, problem solving, questioning, rationalizing, thinking) (41%), support from peers and tutors (including advice, caring, comforting, compassion, constructive suggestion, encouraging, guidance, helping, inspiring, interaction, motivation, reassuring, reinforcing, responding, sharing, support) (28%).

Similarly, open-ended questions from the feedback questionnaires revealed that the most frequently noted positive factor with regard to reflective group discussion was the interactive and multi-perspective nature of group discussion; in particular, the sharing and exchange with peers and facilitating tutors. Students highlighted that group reflective discussion assisted in their development of reflective skills primarily through peer learning and peer support:

"The main positive thing about reflective discussions: talking with peers can give greater knowledge and perspectives on different situations and thought processes and the feedback is immediate." BOralH III 2007

Some students felt that being able to discuss critical incidents instead of writing journal entries enhanced their professional identity:

"I like being able to voice their concerns like a real professional instead of being asked to write things down that is typical of being a student." BOralH III 2007

A number of students articulated that effectiveness of reflective group discussion for learning was dependent upon the quality of tutor facilitation:

"Clinical reflective discussions have been good, could be better depending on facilitation. BOralH III 2008

Over 50% of students also evaluated reflective group discussion as being more convenient, requiring less time (i.e. students' own time) than reflective writing:

"Reflective writing is quite time consuming, especially when not weighted anything. More clinical discussions in class as alternative please!" BOralH III 2008

The most frequently noted negative factors were: the use of clinical session time for reflective group discussion, the difficulty in sharing a critical incident when experiences have been uneventful and certain topics being repeatedly discussed:

"Reflective discussions are fine, just not during clinic time. Missing clinic is a real negative, should have these group discussions after clinics." BOralH III 2007

"Finding something to talk about when there has been no significant experience is difficult." BOralH III 2008

"By the third session, most of the same topics were covered over again and I began to wonder whether this time would be better spent learning with patients or doing own study." BOralH III 2008

Discussion.

Optimal learning occur for students as evolving professionals when they are provided with experiences to translate the theory and practice gained into tangible outcomes for their clients/patients/students and opportunities to reflect "on action" and "in action" (Schon, 1987). Critical reflection is thus an imperative attribute of the evolving professional. Critical reflective practices can involve a variety of approaches, including written, verbal and visual forms, encompassing both internal and external dialogues, individually or in groups (Jindal-Snape & Holmes, 2009; Killeavy & Moloney, 2010). This study explored three cohorts of final year undergraduate oral health students' perceptions of using reflective group discussions as a critical reflection approach for clinical and professional development and the implications relevant to undergraduate professional training programs and students as evolving professionals.

In-class group discussion did promote reflection as defined in this study and in accordance with Kember et al.'s four levels of reflection (2008). Reflection and to a lesser extent, critical reflection occurred most frequently during in-depth discussion of the group-selected critical incident. This contrasted with Bell et al.(2010)'s study, where they reported frequent demonstration of premise or critical reflection using Kember's levels of reflection. They attributed this to the inclusion of "any change in perspective, rather than "significant" change" as per Kember et al. (1999) as critical reflection and categorizing throughout the journal rather than one category for the entire journal. Students most frequently discussed aspects of clinical practice, time management and professional development during their in-class reflective group discussion. The clinical scenarios generally covered some aspects of clinical practice and/or professional development. The complexity and uncertainties within clinical scenarios provide the essential elements necessary to challenge established views and expectations, and trigger interest and engagement. The personal and emotional aspects of clinical cases, is of particular importance in stimulating engagement and make for more connected knowing (Mezirow, 2000). Engagement and connectedness form the basis of critique and reflection, which drives transformations in the presence of a challenge to ingrained perspectives and assumptions (Mezirow, 1990).

Students perceived in-class reflective group discussion as positive and relevant to their professional and clinical development. Most students support group reflective discussion as being enjoyable, positive, contributing to learning, enhancing confidence, encouraging improvements in critical thinking and professional reasoning. Similarly, Henderson and co-authors (2002) suggested that students who find reflective writing a chore reported that structured group reflective discussions enhanced enjoyment and improved perceived learning. Bush & Bissell (2008) also reported that students in their study "*viewed group discussion much more positively than formal written reflection*" and indicated a preference for group reflection due to the benefits of peer support and compatibility with personal style. Whilst group collaborations and group reflections may not lead to improved understanding that lead to better grades, such groups may enhance engagement, reinforce learning and the need to learn, motivate learning, alleviate doubts and reduce anxiety. Given that reflective writing is often perceived negatively by students as difficult, tedious and isolating (Wetherell & Mullins, 1996; Bush & Bissell, 2008; Sandars, 2009; Killeavy & Moloney, 2010), reflective group discussion may provide a more enjoyable and engaging mode for the development of critical reflection skills and thus more likely to be effective and sustainable.

Unlike other studies which typically articulate a preference for one reflective approach over another as a matter of personal preference and a matter of greater perceived personal benefits from a particular approach, reflective group discussion was viewed as a complementary reflective learning approach to individual reflective writing by the students in this study. This is somewhat surprising given the negativity related to reflective writing reported in the literature. However, it should be noted that students in these cohorts were generally positive about reflective writing. Whilst students in this study did not articulate a preference for either reflective discussion or reflective writing, reflective group discussion was perceived by students as offering unique benefits, different from those gained from reflective writing, including less time consuming (being scheduled in-class rather than requiring students' own time), facilitating learning from and with peers and tutors, enabling multi-perspective critical thinking, providing peer and tutor support and feedback that were immediate and reciprocal and "*being able to voice their concerns like a real professional instead of being asked to write things down that is typical of being a student*". Other studies have also suggested that group reflection "*creates a richer reflective experience for individuals reflecting together*", "*adds further dimensions to the learning*" and "*highlights reactions, thoughts and feelings that were not readily apparent to individuals but obvious to*

others" (Henderson et al., 2002; Sandars, 2009). Furthermore, Mann and co-authors (2009), in their systematic review of reflection and reflective practices in health professions education stated that "*There are some suggestion in the literature that shared reflection was more effective because it offers information from multiple sources and multiple perspectives*". This is in line with Brookfield's (1988) guidelines for critical reflection including analysis of assumptions in the context of the learners' perceptions of their own experiences, group analysis of relevant issues and speculation of alternative meaning perspectives, being specific i.e. working from the particular to the general and being conversational. From a critical social theory perspective, reflective group discussion may be superior in cultivating students' ability to question, deconstruct and then reconstruct knowledge in the interest of emancipation and transformation of knowledge within themselves, and more importantly, as a "critical mass" for bringing about changes within their social domains (Freire, 1994; Leonardo, 2004). By engaging in regular and sustained reflective dialogues, opportunities made possible by the transformation of the mind and the resulting translational actions are likely to empower individuals and their profession (Freire, 1994; Leonardo, 2004; Flemming et al., 2007).

The implications of incorporating both individual reflective writing and reflective group discussion into the curriculum of a professional training program are potentially significant. Utilized together, critical reflection has the potential to create the type of knowledge that empowers change (Leonardo, 2004). Group reflective discussion may increase the likelihood of individual transformative learning by stimulating greater self-awareness, self-examination, self-reflection and greater confidence through critical dialogues with peers and tutors (Mann et al., 2009; Lu, 2010). Through structured opportunities for dialogue and reflection with peers and supervisors, learning is facilitated within a "community of practice" context. Within this supportive community context, students build on each others' experiences, successes and failures, challenges each others' views and insights, leading to collective learning, unlearning and relearning. By engaging in reflective discussion, personal reflections may deepen through being challenged by new, opposing or alternate propositions and the new insights gained may lead to further contribution. This is particularly important for students training to become professionals, as reciprocal collegial support and openness within communities of practice is a valuable resource for continuing professional development, pivotal to ensuring quality assurance, and providing a haven for "speaking the truth and asking hard questions" (Wenger et al., 2002), particularly in relations to clinical and professional dilemmas.

Furthermore, students learn to become more mindful of critical incidents arising in their clinical practice in order to have something "worthy of sharing" for their in-class group reflective discussion. In identifying opportunities for learning (or the lack of), students acquire the skills to assess, evaluate, reason and make judgment. In communicating these findings with peers during group reflective discussions, productive interactions and synergy arise that form the basis for further critique and multi-perspective learning. As such, reflective group discussion may provide a more superior forum for the liberation of knowledge than independent reflective journals, by engaging and empowering students in dialogue as critical collaborators to facilitate contextual reflectivity and reflexivity (Freire, 1994).

Implications of the negative aspects that affected students in this study were also substantial. Reflective group discussions were scheduled into clinical sessions mainly due to timetabling difficulties but in doing so, students were faced with the dilemma of having patient contact time reduced, which may have adversely affected some students' willingness to engage in reflective group discussion. This was especially so when reflective group

discussions became repetitive or when group members did not have something to share. Reflective group discussion was implemented as an additional learning activity within an already very busy curriculum and in doing so the proportion of time students were required to engage in reflective learning was increased, resulting in a sense of "overkill" – once again, contributing to a kind of "pre-emptive disengagement". For some students, their clinical experiences may not have been challenging or different enough to result in critical incidents that were noteworthy and non-repetitive, which rendered critical reflection difficult, if not redundant, and this in turn affected not only that individual but also the group dynamics of their reflective group. Reducing factors that lead to "pre-emptive disengagement" by utilizing reflective practice/s judiciously within a balanced curriculum and integrated to achieve the program goals and being flexible about the modality for reflective learning, would likely improve student engagement.

In generalizing the findings of this study to other contexts, several limitations of the study should be considered. There may be issues relating to convenience sampling and the lack of a control group for comparison. The evaluation focused on student perceptions, which according to Kirkpatrick's outcome hierarchy, represents a low level outcome (Kirkpatrick, 1996). Evaluations came from student cohorts that consisted of mostly females, who were enrolled into the same compulsory clinical course in the final year of the same degree program and taught within a small class setting. In studies that examined the student evaluations of courses and teachers, it has been demonstrated that female students, students in higher year levels and students in smaller class sizes tend to provide better evaluation ratings (Tatro, 1995; Koh & Tan, 1997; Denson et al., 2010). The number of reflective group discussions per academic year was limited to a maximum of six. This may not be adequate for refining group dynamics and improving group reflective skills. On the other hand, six may be too many if access to diverse critical incidents was limiting or if topics discussed became overly repetitive or if demanded of students on top of reflective journaling. In addition, participation in reflective group discussions and submission of a reflective essay were part of course requirement and assessed and this may have introduce bias e.g. students may write for the examiner. The literature on assessing reflections is highly controversial (Kember et al., 2000; Pee et al., 2002; Jindal-Snape & Holmes, 2009; Tsang & Walsh, 2010) and the primary rationale for assessing the reflective learning components in these cohorts is to convey importance to the students as assessment strongly influences student engagement.

Future studies should aim to focus on the short-term and long-term impact of critical reflective and reflective practice/s (reflective writing and/or reflective group discussion), especially improvement of clinical and professional practice in terms of client/patient/student outcomes within professional training programs as well as sustainability of explicit reflective practices after graduation and their effects on client/patient/student outcomes compared to those relying only upon implicit reflection. In-class reflective group discussion vs. online reflective group discussion e.g. blogging for professional development also warrants further examination, particularly within a social critical theory framework and should include explorations relating to ease of transfer and relevance for the post-graduation context. Moreover, the efficacy of reflective group discussion training in improving critical dialogues within communities of practice and reflective learning within communities of practice are worthy of further investigation.

Conclusion

The findings of this study supported the inclusion of in-class reflective group discussions into the undergraduate curricula, not as a substitute in place of reflective writing, but rather,

complementary to reflective writing. Reflective group discussion offers different benefits to student learning compared to individual reflective writing, in particular, collaborative multi-perspective learning and professional development through a supportive "community of practice" engaging in critical dialogue. By engaging in critical reflective dialogue, students and supervisors become collaborators in reflective interrogation, imaginative speculation, perspective transformation and in the creation of the kind of knowledge that empowers change within themselves and their social domains.

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